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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,391	06/19/2001	Takayuki Kifuku	Q64978	1332
7590 04/19/2005				
SUGHRUE, MION, ZINN, MACPEAK & SEAS				
2100 Pennsylvania Avenue, N.W.				
Washington, DC 20037				
			EXAMINER	
			SMITH, TYRONE W	
		ART UNIT	PAPER NUMBER	
		2837		

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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**Office Action Summary**

Application No.

09/883,391

Applicant(s)

KIFUKU ET AL.

Examiner

Tyrone W. Smith

Art Unit

2837

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-20 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### **Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8 and 11-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Iwashita (5467001) in view of Mori (JP06-225573).

Regarding Claims 1-3 and 11-20. Iwashita discloses a control method for alternating current motor, which includes a drive circuit (Figure 3 #8) for driving the motor (Figure 3 #9) and a motor control apparatus for control the drive circuit. The motor controller limits a motor current by providing a motor current limit value (refer to Figure 4 steps S1-S10 item Ko) that is integrated with a value of the predetermined function of the phase current of the motor (refer to Figure 4 steps S1-S10 item. 10). Limiting the target value of the target value of the phase current in accordance with the motor current limit value (column 5 lines 1 1-67, column 6 lines 1-41 and column 7 lines 43-60). However, Iwashita does not disclose a motor current limit value calculating section for providing a motor current limit value that is an integrated value of a predetermined function of the phase current of the motor act as an index of power consumption.

Mori discloses a vector controller for an Induction Motor, which includes a PWM inverter/driver (Figure 3 #2) for the motor; a micro-controller which limits a motor current (d and q axial by vector synthesizing) in accordance with an integrated value of a predetermined function of a phase current (index of power consumption). The micro-controller for Mori's

invention, as illustrated in Figure 9, analog-digital converters (7), current control section (6), coordinate transformation section (9 and 10), transducer (8) and an integrator (5). Also, refer to Figure 6 where the current control section includes limiter circuits (6e and 6f), PI controller (6a and 6c) and interference term compensation means (6c and 6d).

It would have been obvious to one of ordinary skill in the art at the time of invention to use Iwashita's a control method for alternating current motor with Mori's a vector controller for an Induction Motor. The advantage of combining the two would assure a vector control state even if the DC voltage of a PWM inverter were lowered in order to vector control a motor by the inverter having a current control system.

Regarding Claims 4-8. Mori discloses a vector controller for an Induction Motor, which includes a PWM inverter/driver (Figure 3 #2) for the motor; a micro-controller which limits a motor current (d and q axial by vector synthesizing) in accordance with an integrated value of a predetermined function of a phase current (index of power consumption). The micro-controller for Mori's invention, as illustrated in Figure 9, analog-digital converters (7), current control section (6), coordinate transformation section (9 and 10), transducer (8) and an integrator (5). Also, refer to Figure 6 where the current control section includes limiter circuits (6e and 6f), PI controller (6a and 6c) and interference term compensation means (6c and 6d).

It would have been obvious to one of ordinary skill in the art at the time of invention to use Iwashita's a control method for alternating current motor with Mori's a vector controller for an Induction Motor. The advantage of combining the two would assure a vector control state even if the DC voltage of a PWM inverter were lowered in order to vector control a motor by the inverter having a current control system.

**Allowable Subject Matter**

3. Claims 9 and 10 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Response to Amendment and Arguments**

4. Applicant's amendment and arguments filed April 13, 2005 have been fully considered but they are not persuasive.

Applicant argue that the reference, Iwashita does not teach a micro-controller that limits a motor current in accordance with an integrated value of a predetermined function of a phase current of the motor as an index of power consumption. However, Examiner believes that Mori teaches the claimed invention as presented in the amended claim 1.

The limitation "...micro-controller limits a motor current in accordance with an integrated value of a predetermined function of a phase current of the motor as an index of power consumption". Examiner interprets the claim to mean the micro-controller limits a motor current in accordance with an integrated value of a predetermined function of a phase current of the motor that would mean this is an index of power consumption, based on the amended claim(s) 1. Mori discloses a multi-phase motor; drive circuit, and a micro-controller. The micro-controller for Mori's invention, as illustrated in Figure 9, analog-digital converters, current control section, coordinate transformation section, transducer and an integrator. The Proportional integration control means, within the current control section, proportionally integrates current detected values of the exciting axis current command, received from the coordinate transformation section. The limiters, within the current control section, limits the voltage commands to prevent overheating of the motor. Refer to Figure 1. The present invention purpose is to control and

perform overheat protection of the motor. Mori limits voltage command whereas the present invention states that it limits motor current. Both are used and entered into a PWM inverter to control the motor. Based on the amended claim(s) as presented Examiner believes this is an index of power consumption.

Regarding Claims 4-8 and the Mori reference, Examiner refers Applicant to Patent Rules C.F.R. 1.111 section b where it states, " In order to be entitled to reconsideration or further examination, the applicant or patent owner must reply to the Office action. The reply by the applicant or patent owner must be reduced to a writing which distinctly and specifically points out the supposed errors in the examiner's action and must reply to every ground of objection and rejection in the prior Office action. The reply must present arguments pointing out the specific distinctions believed to render the claims (each claim), including any newly presented claims, patentable over any applied references. If the reply is with respect to an application, a request may be made that objections or requirements as to form not necessary to further consideration of the claims be held in abeyance until allowable subject matter is indicated. The applicant's or patent owner's reply must appear throughout to be a bona fide attempt to advance the application or the reexamination proceeding to final action. A general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references does not comply with the requirements of this section.

Newly rejected claims 1-8 and 11-20 is maintained under 35 U.S.C. 103(a).

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W. Smith whose telephone number is 571-272-2075. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin, can be reached on 571-272-2800 ext. 37. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tyrone Smith  
Patent Examiner

Art Unit 2837

A handwritten signature in black ink, appearing to be 'DM', with a large, sweeping flourish extending upwards and to the right.

DAVID MARTIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800